animals are more sensitive to atmospheric changes than human beings, and sense an approaching weather change hours before it is apparent to man. * * *

One animal barometer in this class, much observed east and west during the summer season, is the swallow. The swallow is insectivorous to the *-nth* degree. Other than insects hardly pass its bill from one season's end to another, and it captures this food on the wing. Thus it happens that as a weather forecaster the swallow on thousands of farms is always ready with an answer.

Swallows flying high indicate fair weather. Swallows flying low presage a storm. The explanation of these "signs" is simple. The relative level at which swallows fly is determined by the whereabouts of insects. The lighter [denser][1] the atmosphere, as in the case of fair weather or clearing weather, the higher will insects be found, while an oncoming storm, presaged by growing [decreasing][1] density, forces them to levels near the ground, where the swallows will be noticed in pursuit of them.

[1] Moist air is so frequently thought of as "heavy" that it is a common mistake to refer to it as dense, whereas moist air, volume for volume, is lighter than dry air. Furthermore, since clearing weather is almost invariably associated with falling temperature, decreasing humidity and rising pressure, all of which contribute to *increasing* density, and since the reverse is true with an on-coming storm, it is obvious that the effects described are associated with a tendency in density opposite to that mentioned.—EDITOR.

It has been observed by New Englanders that ants, sensing an approaching rain, will close the entrance to their small hills, and conversely, as weather clears, will open them. To this extent ants are found reliable forecasters. Instinctively they react to changes in the atmosphere and close their hills for protection against water.

A late fall and winter weather sign, which many country boys using box traps have learned the accuracy of, is furnished by the small coney rabbit, in rare cases by the more wary jack rabbit. These boy trappers note that catches of rabbits are always better just before a storm—the longer and more severe that storm proves, the more numerous the rabbits caught. Here again a change in the atmosphere has warned the rabbit tribe that a spell, during which food will be hard to obtain, is at hand and instinctively to "fill up," even to the point of entering traps they formerly had avoided. Country boys of New England know that if there is ever a time a rabbit will enter a box trap it is just before a snowstorm.

Doubtless other instances in which wild creatures function in the rôle of genuine weather forecasters could be advanced.

ABSTRACTS, REVIEWS, AND NOTES.

THE METEOROLOGICAL MAGAZINE.

[Reprinted from Nature, London, Mar. 18, 1920, p. 83.]

The "*Meteorological Magazine*," an official publication of the *Meteorological Office*, was first issued under its new title about the middle of February. The journal incorporates "Symons's *Meteorological Magazine*" and the "*Meteorological Office Circular*." For convenience in reference, the serial numbers of "*Symons's Meteorological Magazine*" are being carried on. The change has come about through the absorption of the British Rainfall Organization in the Meteorological Office. The cover of the new publication gives the portraits of four pioneers of meteorology, all of whom were associated with the Meteorological Office. Of these Admiral FitzRoy had charge of the Office at its initiation, when it was a branch of the Board of Trade, and Mr. Symons was an assistant 60 years ago, but left after a short period and devoted himself to the collection of rainfall returns, from which evolved later the British Rainfall Organization. Generals Sabine and Strachey were successively chairmen of the Meteorological Office when controlled by the Royal Society. Little change has been introduced into the style and character of the publication, and it is evidently not intended to make any radical alteration. In addition to the interesting article on "Weather in the British Isles" for the preceding month, which has hitherto regularly appeared in *Symons's Meteorological Magazine*, an article is now given on "Weather Abroad," which will doubtless be valued by readers of the journal.

METEOROLOGICAL MEETING AT VENICE.

An announcement has been received from the Italian Meteorological Society that the meeting originally called for September, 1914, but postponed on account of the war, will be held at Venice at a date in October to be announced in a later circular. The circular says, in part:

> The great problems presented by meteorological science having increased in number during the last few years, invite to a friendly meeting all the studious who, either as a duty or out of individual inclination, occupy themselves with meteorology.
>
> The exchange of opinions between colleagues [of different countries] who in these years have been obliged to suspend their studies or continue them amidst not inconsiderable fatigues, the renewed fellowship promise well for a profitable work, directed toward the sole aim of keeping high the flag of science, which is to a certain degree the object of our life.

METEOROLOGICAL STATIONS IN ECUADOR, 1920.

By FREDERIC W. GODING, Consul General.

[Guayaquil, Ecuador, Jan. 12, 1920.]

Recognizing the importance of forecasting weather conditions as practiced in many countries for the benefit of the agriculturist, the technical office of the Association of Agriculturists of Ecuador has inaugurated a similar system throughout the coastal provinces, including the Galapagos Islands. With that object in view 50 farms have been selected at convenient distances, where are being installed maximum and minimum thermometers and pluviometers, with which observations regarding the temperature and rainfall will be recorded daily, and published in a quarterly bulletin. At the end of each year averages of temperature and rainfall of the different sections will be established from these data, and, with the averages of various years, it will be possible to foretell approximately what the weather will be.

While at present it is not possible to foretell weather conditions very long in advance in any country, in the Tropics where climatic changes are usually sudden it will be specially true; yet, by comparing averages of several successive years, valuable advice can be given to those interested on the critical periods of each crop, thus permitting the farmer to calculate in advance the most favorable time to plant and harvest.